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(54) ELECTRO-SURGICAL TIP CLEANER

(71) We, ETHICON, INC., a Corporation of the State of New Jersey, United States of America, of Somerville, New Jersey, Unites States of America, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a device for cleaning surgical instruments and, more particularly, to a device for cleaning charred blood and tissue from the tip of an electro-surgical instrument, such as an electro-cautery.

During a large number of surgical procedures, an electro-surgical instrument is utilized to cauterize the various vessels and tissure that are severed when the surgical wound is opened. The cauterizing tip utilizes high temperatures to achieve the desired cauterizing effect and, thus, it is inherent in this surgical procedure that the tissue and blood become charred and, therefore, adhere to the tip of the electro-surgical instrument. In order to maintain the efficiency of the cauterizing instrument, it is necessary, from time to time, to clean the charred blood and tissue from the tip of the instrument.

This is at present done in the operating room by scraping the tip of the electro-surgical instrument with a scalpel blade or other sharp instrument. Obviously, the scraping action is very time consuming and may also be detrimental to the tip of the electro-surgical device.

This present tip cleaning procedure also has many other disadvantages in that it requires valuable surgeon and/or scrub nurse time and subjects the patient to delays that may be seriously detrimental to the outcome of the surgical procedure. For example, in the case of infant surgery, unnecessary and wasted time spent cleaning the tip of the electro-surgical instrument could result in significant blood loss. While the tip is being cleaned and handed back to the operating surgeon, a bleeding vessel can conceivably pump out enough blood to cause concern from an infant who is undergoing a lengthy surgical procedure.

The present invention provides a device for cleaning the tip of an electro-surgical instrument. An abrasive surface is presented to the operating surgeon at a location adjacent the operating site and the tip cleaning procedure may be performed rapidly by the surgeon without the necessity of relinquishing control of the instrument. No sharp objects are required to clean the tip of the instrument and this also eliminates the possibility of the surgeon or scrub nurse being inadvertently injured by the sharp cleaning object.

According to the present invention we provide a device for cleaning the tip of an electro-surgical instrument, comprising: a resiliently compressible pad of foamed rubber or foamed plastics material; an adhesive coating on one face of said pad for securing said pad to a surgical drape or other operating room surface; and abrasive means on the other face of said pad. The foamed material is preferebly a polyester foam. The invention further provides a surgical drape comprising a sheet of flexible material adapted to be positioned over the body of a patient or other operating room surface during a surgical procedure, and a device according to the invention secured by its adhesive coating to a portion of said sheet.

Other advantages which are provided by the invention will become apparent after a review of the description of the invention set forth below by way of illustration with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view of the electro-surgical tip cleaning device of the present invention showing a portion of the backing sheet peeled away for clarity;

Figure 2 is a cross-sectional view taken along line 2—2 of Figure 1; and

Figure 3 is a perspective view of the electro-surgical tip cleaning device of

the present invention secured to the surface of a surgical drape and having portions broken away for clarity.

The electro-surgical tip cleaning device of the present invention is shown generally in Figure 1 at 10. Device 10 comprises a pad 11 of compressible material which may preferably be constructed from a rubber or plastic foam. As viewed in Figure 1, pad 11 has an adhesive 12 coated on one face and a layer 13 of abrasive material secured to its other face. A backing sheet 14 is secured to, and completely covers, adhesive 12.

The abrasive pad represented by numerals 11 and 13 is not considered by applicant to be novel in itself, in that abrasive faced cleaning pads consisting of a backing member and a coating of abrasive material have been utilized heretofore for various cleaning procedures. The methods of making such a pad are numerous and this is not considered to be a critical aspect of the present invention. In the preferred embodiment of the present invention, the applicant has selected a polyester foam for pad 11, and abrasive layer 13 may be selected from a wide variety of abrasives suitable for the purpose and among those successively used has been aluminium oxide. Abrasive layer 13 can be formed on pad 11 in a number of ways, such as by first mixing the abrasive particles with a waterproof glue or cement and then spreading the mixture on pad 11. Alternatively, the abrasive layer of granules 13 may be coated with a waterproof cement or glue and the abrasive particles may then be sprinkled over the coated surface while the coating is still wet.

The particular type of adhesive selected for adhesive 12 is not critical; however, it is preferred that adhesive 12 be selected from the well known pharmaceutically acceptable adhesives.

Device 10 is intended for use in a surgical procedure and, therefore, the device must be appropriately packaged and delivered to the operating site in a sterile condition. After this has been done, it is only necessary for the scrub nurse or surgeon to remove backing sheet 14 from device 10 to thereby expose adhesive 12. The device is then applied directly to a surgical drape or other operating room surface with adhesive 12 in contact with the surface. As illustrated in Fig. 3, device 10 has been adhesively secured to the upper surface of a surgical drape 15. Only a portion of drape 15 is illustrated in Fig. 3 in that surgical drapes inherently have a variety of sizes and shapes and it was not thought to be feasible to illustrate each type of drape that may be usable with the present invention. It should be pointed out, however, that device 10 may be usable with both reusable and disposable surgical drapes.

After the surgical procedure has advanced to the stage that it is necessary to clean the tip of an electro-surgical instrument, it is only necessary for the surgeon to place the tip 16 in contact with abrasive layer 13 and to scrape the tip against the layer in a manner calculated to remove any charred blood and tissue that may have adhered to tip 16. It will be apparent that it will no longer be necessary to hand the instrument to a scrub nurse for cleaning nor will it be necessary to utilize dangerous sharp objects, such as, scalpels in the cleaning of tip 16.

A rubber or plastic foam was selected for the construction of pad 11 because it provides a compressible material that may be compressed under the force of the electro-surgical instrument. This permits the abrasive particles on the foam to become slightly depressed and thus avoids damage to the tip of the instrument.

The foam also provides a "platform" which supports the abrasive layer 13 away from the surface of surgical drape 15. Thus, inadvertent damage to the surface of drape 15 by the tip of the instrument will be avoided.

WHAT WE CLAIM IS:—

1. A device for cleaning the tip of an electro-surgical instrument, comprising: a resiliently compressible pad of foamed rubber or foamed plastics material; an adhesive coating on one face of said pad for securing said pad to a surgical drape or other operating room surface; and abrasive means on the other face of said pad.

2. The device according to Claim 1, wherein said coating is a pharmaceutically acceptable adhesive.

3. The device according to Claim 1 or 2, wherein said foamed material is a polyester foam.

4. The device according to any preceding Claim, further comprising a backing sheet completely covering said adhesive coating.

5. The device according to any preceding Claim, wherein said abrasive means is a layer of abrasive granules.

6. The device according to Claim 5, wherein said layer comprises aluminium oxide granules.

7. A device for cleaning the tip of an electro-surgical instrument substantially as described and shown in the accompanying drawing.

8. A surgical drape, comprising a sheet of flexible material adapted to be positioned

over the body of a patient or other operating room surface during a surgical procedure, and a device according to any preceding Claim secured by its adhesive coating to a portion of said sheet.

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1472087 COMPLETE SPECIFICATION

1 SHEET *This drawing is a reproduction of the Original on a reduced scale*

FIG.1.

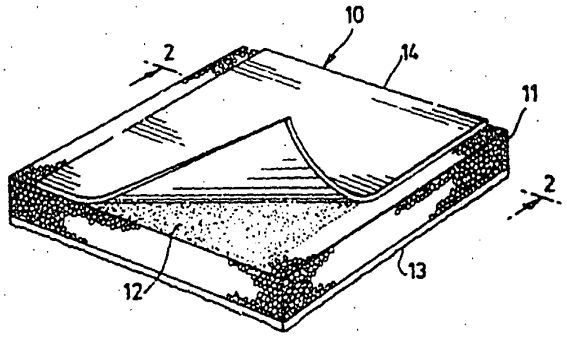

FIG.2.

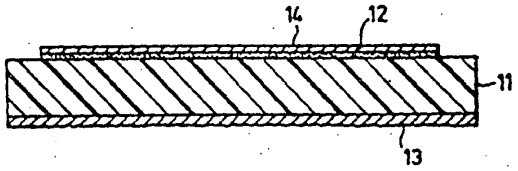

FIG.3.